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SPECIAL ARTICLES

AN ANALYSIS OF DIPHTHERIA DEATHS IN ONTARIO

J. G. FITZGERALD, M.D.

THE CONSERVATION OF CHILD LIFE

DR. A. C. JOST

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The Public Health Journal

VOL. XI.

TORONTO, NOVEMBER, 1920

No. 11

An Analysis of Diphtheria Deaths in Ontario

BY J. G. FITZGERALD, M.D.,

Professor of Hygiene and Director Connaught Antitoxin Laboratories, University of Toronto.

A STATISTICAL study of deaths due to diphtheria made by Carey for the Massachusetts State Department of Health, led to an inquiry being instituted by the writer into the same subject in Ontario. As a matter of interest, it may be noted that diphtheria deaths were registered for the first time in England in 1859, and in the Province of Ontario in 1870. Between the years 1870 and 1880 death registrations were incomplete, and for some unknown reason, no deaths from this disease were registered during the year 1875, or, if they were, no record of them is obtainable. This analysis, therefore, is concerned with diphtheria death registrations between the years 1880 and 1918.

These registrations have been analyzed and tabulated to illustrate the total deaths each year due to diphtheria, the percentage of diphtheria deaths of the total deaths from all causes and the ratio of diphtheria deaths per 100,000 of population (Figures 1, 2, 3). Each tabulation includes all years between 1880 and 1918.

There is a striking similarity in the form of the curves plotted to illustrate these points. In all of them the fall in the death rate between 1906 and 1918 is manifest. In each the fact that in 1918 there was recorded the lowest diphtheria mortality yet observed in the Province of Ontario, is clearly brought out. Despite a steady increase in the population from 1,884,000 in 1880, to 2,800,000 in 1918 the total number of diphtheria deaths fell from 1,251 in the former year (1880) to 335 in the latter year (1918).

In order that there may be no misconception in regard to the possible significance of diminished case incidence, a graph has been prepared showing the number of reported cases of diphtheria for the years 1901 and 1919 inclusive (Figure 4.) From this it will be seen that there is a steadily increasing case-incidence even though the case fatality rate has been diminishing. This is in harmony with the facts observed in many other parts of the world. The death rates in pre-antitoxin and antitoxin periods in various countries in the world is well illustrated by the chart prepared by the Statistician's Department of the Prudential Insurance Company of America (Figure 5). Similarly the contrast between results obtained in pre-antitoxin and antitoxin periods may be observed by reference to charts illustrating the Philadelphia and Newark, N.J., experiences (Figures 6-7).

Another interesting observation relates to the difference in the death rate amongst cases treated in hospital and those who were not hospitalized. In Toronto, for example, the difference in death rate has been as follows:

Year.	Percentage of Deaths of Hospital Cases.	Death of Patients not in Hospital (Percent- age of cases reported.)
1912	8.0	12.63
1913	6.15	10.10
1914	7.82	10.29
1915	6.51	12.91
1916	7.00	13.14
1917	4.18	10.90
1918	6.40	19.62

It will thus be seen that the death-rate amongst cases of diphtheria treated in hospital in Toronto is very much lower, as a rule, than amongst those not admitted to hospital. Amongst these latter, however, some of the fatal cases may have received no medical or nursing care. To offset this it must be noted, that a considerable number of hospital cases were admitted in a moribund condition and died within twenty-four hours after admission. This point, as well as the others, are brought out in the following table:

DEATHS FROM DIPHTHERIA, CITY OF TORONTO, 1912-1919.

Year.	Cases Reported.	Treated		Deaths at Hospital.	Deaths at Home.
		in Hospital.	to Hospital.		
1912	1,383	663	720	53	91
1913	895	569	326	35	33
				*(18)	
1914	873	601	272	47	28
				*(11)	
1915	746	537	209	35	27
				*(14)	
1916	1,249	884	365	62	48
				*(30)	
1917	1,445	1,124	321	47	35
				*(30)	
1918	1,163	1,015	158	65	31
				*(25)	
1919	2,132	1,327	805	96	72
				*(24)	

It has long been recognized that delay in the administration of antitoxin is one of the most important reasons why we continue to have deaths due to diphtheria; which deaths it may be remarked are really preventable. The difference in case fatality according to the day of the disease on which antitoxin is given is well shown in the following tables prepared by Kolmer (4), (Figure 9). Further reference will be made to this point in a consideration of our own investigations.

To ascertain what were the essential factors in the Ontario experience a circular letter was prepared and sent to physicians who had been in attendance on patients who died of diphtheria. With this letter was sent a questionnaire; which the physicians were requested to fill in and return. The letter and questionnaire were as follows:

"An endeavour is being made to ascertain why the death rate of diphtheria remains at its present high level in spite of adequate laboratory facilities and most generous provision for free distribution of diphtheria antitoxin.

*Indicates number of hospital cases dying within twenty-four hours after admission; having been admitted, very often, in a moribund condition.

A similar observation has been made by Kolmer (3) in a study of diphtheria deaths in Philadelphia. (Figure 8.)

"To understand why this situation exists, it will be necessary to obtain the cordial support and co-operation of the medical practitioners in Ontario, in the statistical study which is being undertaken.

"Will you, therefore, supply, as completely as possible the information which is requested on the enclosed sheet, regarding this fatal case of diphtheria recently reported by you.

"Your assistance in this will be greatly appreciated and the results of an analysis of the return may be very valuable in devising some plan whereby diphtheria deaths which are preventable may really be prevented."

DIPHTHERIA.

January, 1920.

Name of deceased	Sun.	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
Date of death	4	5	6	7	8	9	10
	11	12	13	14	15	16	17
What was the date of the onset?.....	18	19	20	21	22	23	24
	25	26	27	28	29	30	31

February, 1920.

(Accurate information is particularly requested).	Sun.	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
	1	2	3	4	5	6	7
	8	9	10	11	12	13	14
When was the patient first seen by you?	15	16	17	18	19	20	21
	22	23	24	25	26	27	28
	29						

March, 1920.

	Sun.	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
	1	2	3	4	5	6	
	7	8	9	10	11	12	13
	14	15	16	17	18	19	20
	21	22	23	24	25	26	27
	28	29	30	31			

ANTITOXIN.

- (a) When was it first given?
- (b) Quantity given, 1st dose.....units on.....day case was seen
2nd dose.....units
3rd dose.....units
or total amount
- (c) Was there any delay in obtaining serum?
- (d) In your opinion was delay in calling in a physician a factor in the fatal result in this case?
- (e) Was this case treated in a hospital? If so, please state date of admission

REMARKS:

In all just over 100 replies were received before the preparation of this article was undertaken. Four representative replies are given herewith:

DIPHTHERIA.

July, 1920.

Dr. O'C.	Sun.	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
	1	2	3				
Name of deceased, A. P.	4	5	6	7	8	9	10
	11	12	13	14	15	16	17
Date of death, July 14th, 1920.	18	19	20	21	22	23	24
	25	26	27	28	29	30	31

What was the date of onset?

August, 1920.

(Accurate information particularly requested.)	Sun.	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
	1	2	3	4	5	6	7
	8	9	10	11	12	13	14
When was patient first seen by you?	15	16	17	18	19	20	21
July 14th, 1920.	22	23	24	25	26	27	28
	29	30	31				

NOTE.—If hospital case see "E" below.

September, 1920.

Sun.	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
	1	2	3	4		
	5	6	7	8	9	10
	12	13	14	15	16	17
	19	20	21	22	23	24
	26	27	28	29	30	

ANTITOXIN.

- (a) When was it first given?
- (b) Quantity given, 1st dose.....units on.....day case was seen
2nd dose.....units on
2nd dose.....units on
or total amount
- (c) Was there any delay in obtaining serum?
- Was diagnosis confirmed by a swab?
- (d) In your opinion was delay in calling in a physician a factor in the fatal result in the case?
- (e) Was this case treated in a hospital? If so, please state date of admission

REMARKS.—“I did not attend this case during recent sickness with diphtheria—never saw the case until about one hour before death. He had had the disease a month before, with post diphtheritic paralysis, and when I saw him he was dying and I simply told his people so and left. They mentioned a couple of doctors who had seen him, but I do not know who attended him during the attack.”

DIPHTHERIA.

Dr. C.

Name of deceased, G. V.

Date of death, June 26th, 1920.

June, 1920.

What was the date of the onset?

Sun. Mon. Tues. Wed. Thurs. Fri. Sat.

About June 1st.

1 2 3 4 5

(Accurate information is particularly requested.)

6 7 8 9 10 11 12
13 14 15 16 17 18 19

When was the patient first seen by you? June 24.

20 21 22 23 24 25 26
27 28 29 30

NOTE.—If hospital case see "E" below.

ANTITOXIN.

(a) When was it first given? Not given.

(b) Quantity given, 1st dose.....units on.....day case was seen
2nd dose.....units on
3rd dose.....units on
or total amount

(c) Was there any delay in obtaining serum? No.

Was diagnosis confirmed by a swab?? No. Swab negative.

(d) In your opinion was delay in calling in a physician a factor in the fatal result in this case? Yes.

(e) Was this case treated in a hospital? If so state date of admission. No.

REMARKS.—“*The patient had an attack of sore throat with white patches, foul breath, about June 1. No doctor called. I saw her June 24th, when she was moribund with diphtheric paralysis and myocarditis, vomited continually, palate paralyzed and unable to move her legs; pulse 150. I was afraid to give antitoxin with her condition so critical. Swabs were negative.*”

DIPHTHERIA.

July, 1920.

Sun. Mon. Tues. Wed. Thurs. Fri. Sat.

Dr. L. McL.

1 2 3

4 5 6 7 8 9 10

Name of deceased. H.

11 12 13 14 15 16 17

18 19 20 21 22 23 24

Date of death, August 1st, 1920.

25 26 27 28 29 30 31

What was the date of the onset?.....

August, 1920.

Sun. Mon. Tues. Wed. Thurs. Fri. Sat.

1 2 3 4 5 6 7

8 9 10 11 12 13 14

(Accurate information is particularly requested).

15 16 17 18 19 20 21

22 23 24 25 26 27 28

29 30 31

September, 1920.

When was patient first seen by you?	Sun.	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
	1	2	3	4	5		
	6	7	8	9	10	11	12
	13	14	15	16	17	18	19
NOTE.—If hospital case see "E" below.	20	21	22	23	24	25	26
	27	28	29	30			

ANTITOXIN.

- (a) When was it first given?
- (b) Quantity given, 1st dose..... units on day case was seen.
2nd dose..... units
3rd dose..... units
or total amount
- (c) Was there any delay in obtaining serum? No.
Was diagnosis confirmed by a swab?
- (d) In your opinion was delay in calling in a physician a factor in the fatal result in this case? Yes.
- (e) Was this case treated in a hospital? If so, please state date of admission. No.

REMARKS.—"I saw this case half an hour before death. The child had been sick all week without medical attendance, the parents thinking it a case of tonsilitis. The patient was comatose when I saw him first."

DIPHTHERIA.

July, 1920.

Dr.: G. W. W.

	Sun.	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
Name of deceased, T. E. B.					1	2	3
	4	5	6	7	8	9	10
Date of death, August 12th, 1920.	11	12	13	14	15	16	17
	18	19	20	21	22	23	24
What was the date of the onset?	25	26	27	28	29	30	31

August, 1920.

	Sun.	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
(Accurate information is particularly requested).	1	2	3	4	5	6	7
	8	9	10	11	12	13	14
	15	16	17	18	19	20	21
When was the patient first seen by you?	22	23	24	25	26	27	28
	29	30	31				

September, 1920.

	Sun.	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
NOTE.—If hospital case see "E" below.	5	6	7	8	9	10	11
	12	13	14	15	16	17	18
	19	20	21	22	23	24	25
	26	27	28	29	30		

ANTITOXIN.

- (a) When was it first given?
- (b) Quantity given, 1st dose.....units on.....day case was seen.
 2nd dose.....units
 3rd dose.....units
 or total amount
- (c) Was there any delay in obtaining serum?
- Was diagnosis confirmed by a swab?
- (d) In your opinion was the delay in calling in a physician a factor in the fatal result in this case?
- (e) Was this case treated in a hospital? If so, please state date of admission

REMARKS.—“This boy was away from home at his grandfather's when he took sick, which was on or about July 30th. A doctor was called to see him Sunday, August 1st, and again Monday and Tuesday, but apparently did not recognize the trouble. The father who had been sent for brought the boy home on Wednesday, August 4th. I saw him in about two hours (2 p.m.) made diagnosis of diphtheria as his whole pharynx and nasal passages were covered by membrane by this time. Temp. 101 etc.... I gave immediately 20,000 units antitoxin, 15,000 again next day, and 15,000 again following day. By Tuesday, August 10th, throat and nose clear from membrane and temperature normal, but patient very pale and listless. Died suddenly Thursday morning from heart failure. This boy died because his trouble had not been recognized and antitoxin used earlier.”

In all just over 100 replies were received before the preparation of this article was undertaken.

The more salient features brought out by an analysis of the replies has been prepared in the following series of tables:

TABLE I.
AGE FACTOR—(101) CASES.

1	2	3	4	5	6	10	16	over 25	No. under School Age.	No. of School Age.
					to	to	to			
4	9	20	15	12	22	13	4	9	15	25
Under School Age, 63.										
School age, 26.										
Over School Age, 12.										

TABLE II.—CLINICAL TYPES.

CASES.				
Laryg.	Phary.	Nasal.	Mixed.	Not Stated.
11	3	3	19	65

TABLE III.—COMPLICATIONS.

AND OTHER FACTORS.

Sudden Deaths.	Lack of Nursing Care.	Myocardial Failure.	Paralysis Noted.
12	8	26	5

TABLE IV.

DELAY IN CALLING PHYSICIAN.

No. of days ill before Dr. called.							Unrecognized Cases.	Moribund when Called.
1	2	3	4	5	6	over 6		
2	13	14	17	18	8	12	13	6

No. ill two days or under—15. No. ill over two days—85.

TABLE V.
ANTITOXIN DOSAGE

1M	3M	5M	5M	10M	15M	20	to	to	to	over	Intra-	Intra-	Not	Given in Di-	No. of Doses given
10M	15M	20M	25	25M	25M	venous	muscul	stated	Doses	26	37	18	4	o	
1	2	6	16	10	22	6	9	7	1	87	63	1	2	3	4 ove
Average Dose	-	26M	units												
Smallest	,	,		1M	,										
Largest	,	,		15M	,										

TABLE VI.

NEG. SWABS—CLINICALLY POSITIVE CASES.

Lab: Diagnosis Neg. in Clinically Positive Cases.

6

In some instances incomplete information was received so that the total number of cases is not the same in each table.

A summary of the analysis of the age, of the cases shows that approximately 63% were children of pre-school age. This emphasizes the fact that diphtheria mortality will not necessarily be favourably influenced by the extension of medical and nursing service in schools. Table IV. serves again to refer to a point already raised, the importance of early treatment. In 85% of these fatal cases, the physician was not called until the patient had been ill for more than two days: and in over one-half of the cases more than four days elapsed before treatment was begun.

In Table VI. another very important point is established. In six cases, which at first were considered clinically doubtful, a negative laboratory report on the throat swab was received, but the case ended fatally, and diphtheria was given as the cause of death. The desirability of administering antitoxin, at once, in clinically doubtful cases of diphtheria where only one throat swab is taken, is clearly evident.

In this connection it should be remembered that the reason why all of these throat swabs from clinically positive cases were negative may be due to the fact that such swabs are frequently received from distant points, and 48 hours may elapse between the time when the swab is taken and the time when it reaches the laboratory. A physician who cannot have throat swabs cultured within a few hours after they are taken should, in all doubtful cases, administer antitoxin at once, and not await the result of the laboratory examination.

The average dose of antitoxin administered in these cases was 26,000 units. This is quite adequate if administered early; but if the patient is seen late in the disease, and the case is clinically severe more antitoxin may be necessary. In more than 60% of these cases 20,000 units or less was administered, altogether. Furthermore, in 63 cases, the antitoxin was given in divided doses instead of in one adequate single dose, when the patient was first seen. It is highly desirable to inject the entire amount of antitoxin which is to be given in one dose, and this should be administered at once and not in divided doses, twenty-four, thirty-six, or forty-eight hours after the patient is first seen—then, again, antitoxin should very often be given intravenously, if treatment has been delayed. In this series it was given intravenously in only seven cases apparently in a total of thirty-nine.

Certain very definite indications emerge from a consideration of the facts elicited by this investigation.

SUMMARY.

(1) Early Treatment.—The most important single factor responsible for the continuance of diphtheria deaths is the neglect of early treatment. Failure in this respect is usually due to delay in calling a physician in cases of sore throat in little children. Every sore throat is potentially dangerous. Only the physician can decide which cases are serious and which unimportant... Education of the public in this matter is a matter of vital moment.

(2) Physicians will be well advised, in the opinion of the writer, in administering antitoxin in single rather than in divided doses. Attention is also directed to the desirability of administering at least 5,000 units of antitoxin intravenously in late and severely toxic cases, as soon as they are seen by the physician. In such cases the remainder of the dose which the physician has decided to give, may be injected subcutaneously or intramuscularly. Absorption is ten times as rapid after intravenous, and four times as rapid after intramuscular as after subcutaneous injection.

(3) In regard to the dosage, opinions differ. There are those who hold that a dosage of from 10,000 to 50,000 units is adequate in all cases. Whyte of Toronto, Place of Boston, and Woody of Philadelphia, believe in large doses, even up to 150,000 units. In this connection the statement of Park (4) that "the greater the quantity of antitoxin in the blood the more rapid will an appreciable amount pass to the tissues," should be had in mind. This may decide the issue of life or death in cases of diphtheria where treatment has not been undertaken early.

The writer is greatly indebted to Mr. S. J. Manchester, of the Registrar-General's Branch of the Department of the Provincial Secretary of Ontario, who prepared the charts illustrating the Ontario experiences.

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- (2) Kolmer—Infection, Immunity and Specific Therapy. W. B. Saunders & Co.
- (3) Kolmer—Ibid.
- (4) Park —Pathogenic Micro-organisms. 7th Edition, Lea & Febiger, 1920.

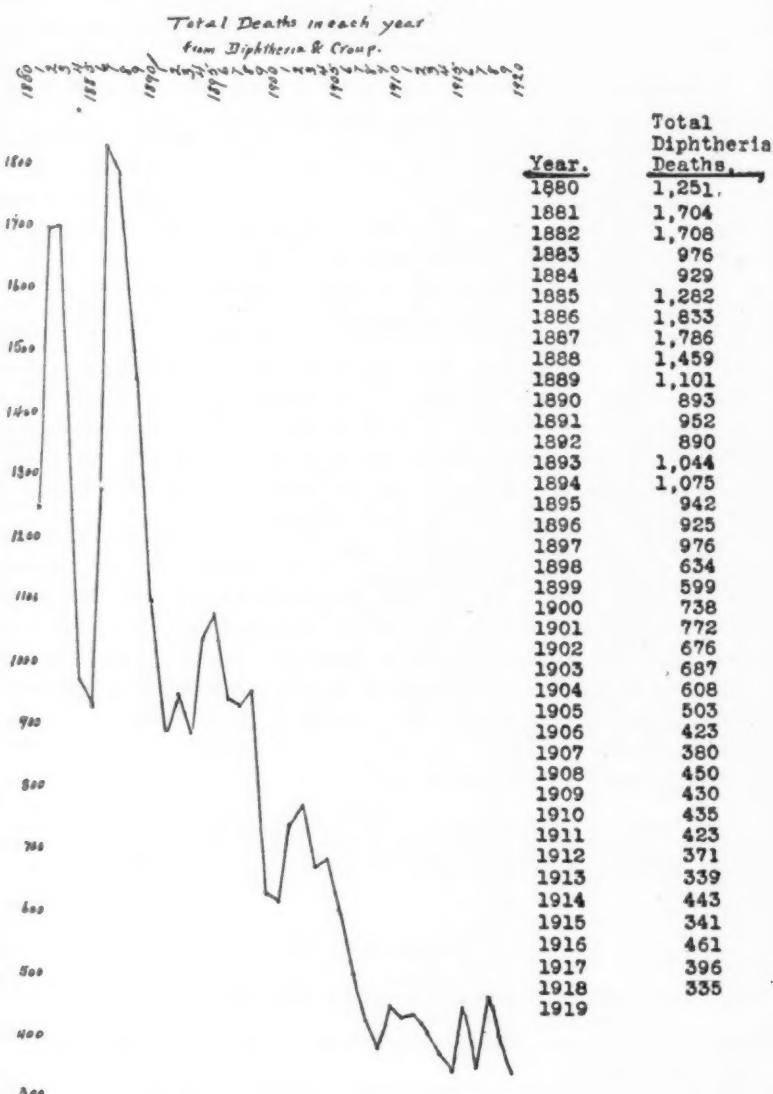
Deaths from Diphtheria & Croup—Ontario.

Fig. 1

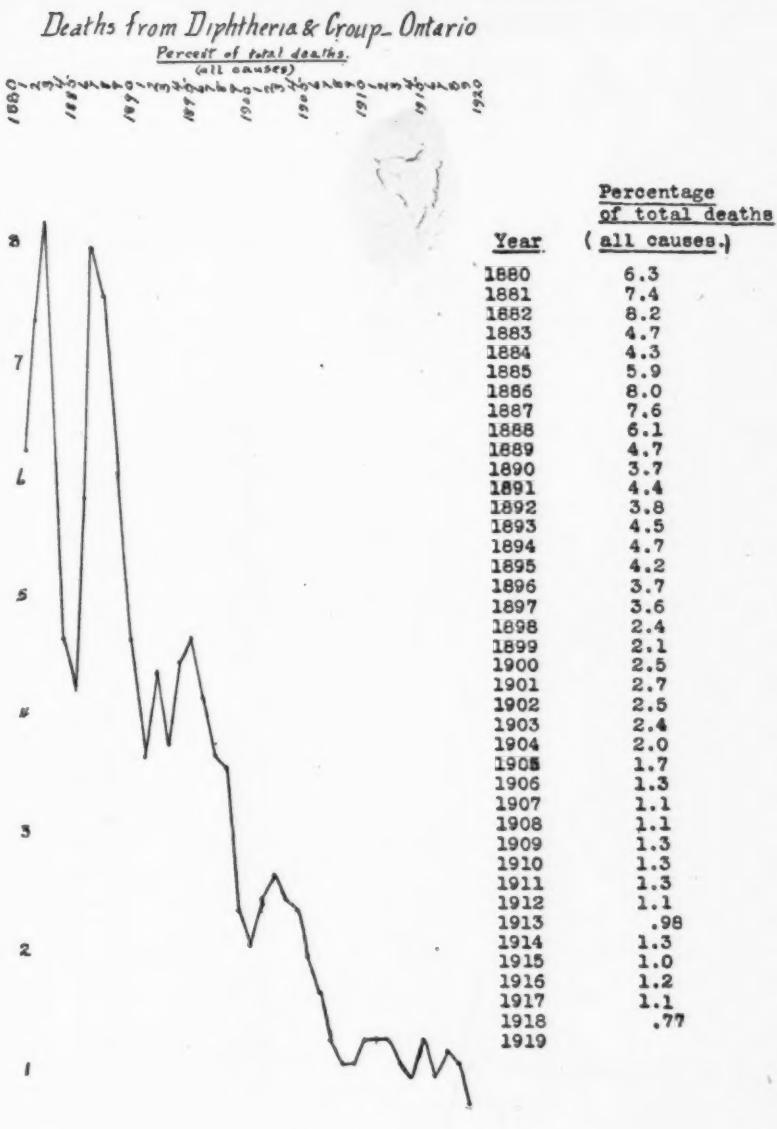


Fig. 2

Deaths from Diphtheria & Croup—Ontario

Ratio per 100,000 of population

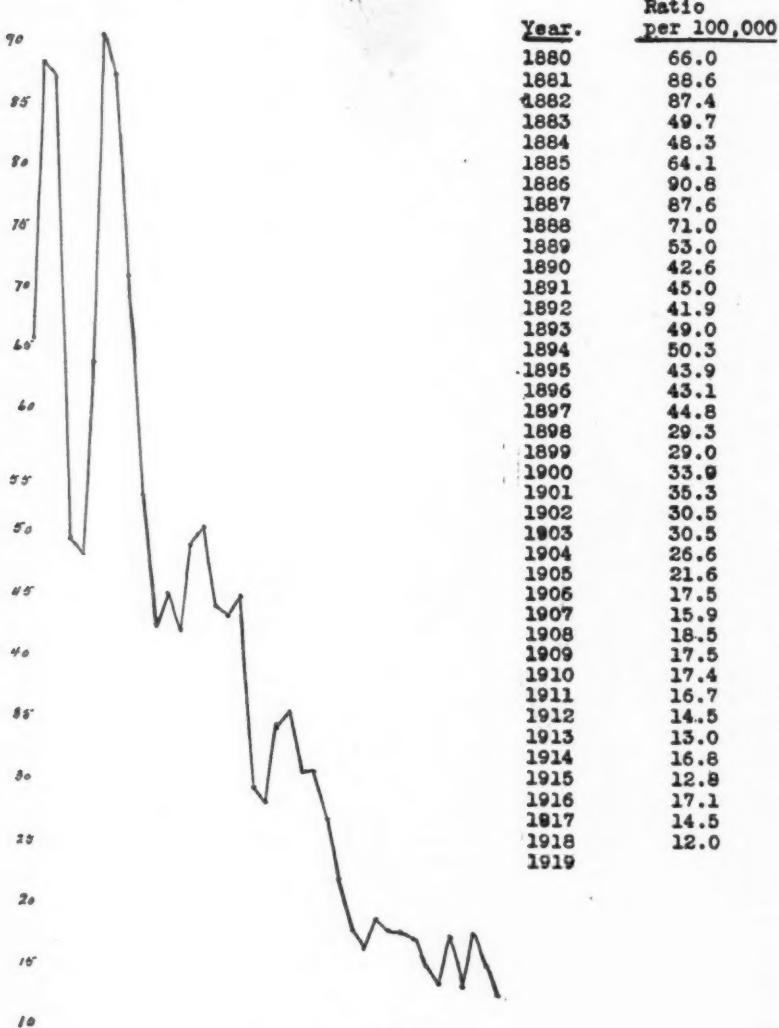
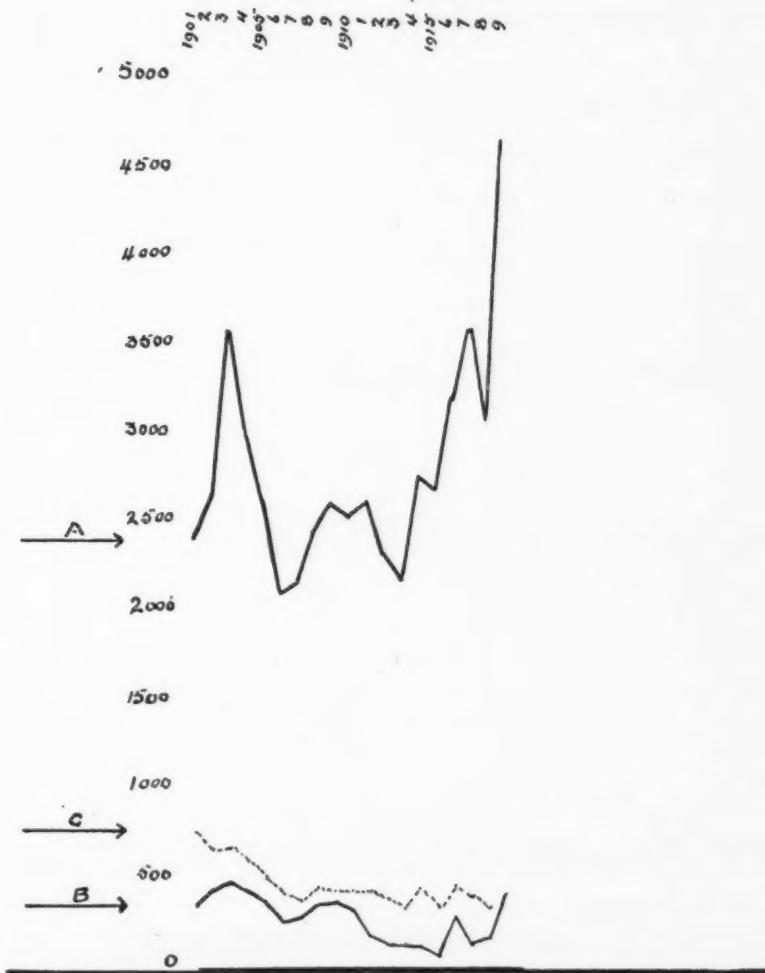


Fig. 3

Cases of Diphtheria - Ontario



A Cases of Diphtheria reported to Provincial Board of Health.

B Deaths reported to P.B.H.
C Deaths registered by Registrar-General.

Fig. 4

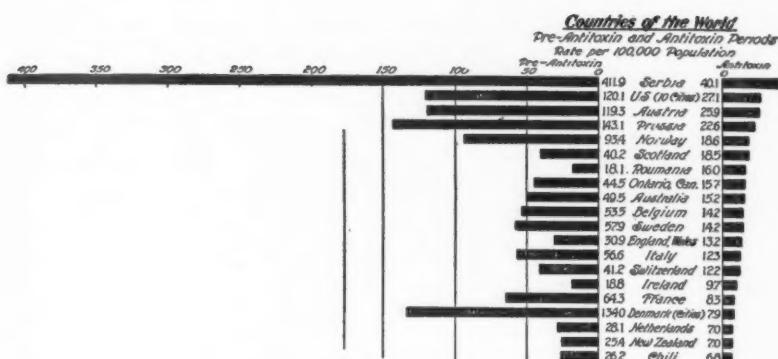


Fig. 5

DIPHTHERIA MORTALITYPHILADELPHIA.MORTALITY RATE PER 100,000

1891..... 127.4)
 1892..... 156.3) 5 YEAR
 1893..... 103.9)
 1894..... 122.5) PRE-ANTITOXIN
 1895..... 115.9) PERIOD.

MORTALITY RATE PER 100,000 population.

1906..... 37.78) 5 YEAR PERIOD
 1907..... 34.60)
 1908..... 33.35) ANTITOXIN IN
 1909..... 33.6) GENERAL USE
 1910..... 31.7)

(Kolmer)

Fig. 6

RESULTS OF ANTITOXIN TREATMENT:

NEWARK, N. J., 1895-1915:

Deaths per 100 cases.

	<u>Antitoxin Used</u>	<u>Not Used.</u>
<u>1895 - 1899.....</u>	10.8	21.6
<u>1900 - 1904.....</u>	7.5	19.9
<u>1905 - 1909.....</u>	6.2	23.2
<u>1910 - 1914.....</u>	5.9	17.6
<u>1915.....</u>	4.4	18.1

Fig. 7

DIPHTHERIA MORTALITY.

PHILADELPHIA.

AVERAGE MORTALITY FROM DIPHTHERIA.

1909-1910-1911.

Patients treated

in Hospital..... 9.9%

Patients treated

in Private Practice..... 13.0%

(Kolmer)

Fig. 8

CASE FATALITY:

ACCORDING TO DURATION OF DISEASE WHEN
ANTITOXIN WAS GIVEN.

PHILADELPHIA, PA. 1910-1914.

Deaths per 100 cases.

First Day.....	1.1
Second Day.....	5.6
Third Day.....	6.8
Fourth Day.....	7.7
Fifth Day.....	9.2
Sixth Day.....	9.3
Seventh & later....	11.4

Fig. 9

The Conservation of Child Life

BY DR. A. C. JOST

Divisional Medical Health Officer, Eastern Health Division, Guysborough, N.S. (Association of Medical Health Officers of Nova Scotia, Kentville, July 6th, 1920).

AT no time in the history of the civilized world is there greater need for conservation than there is to-day, and the necessity for conservation is nowhere more apparent than in respect to human life. A world emerging from the delirium of an epoch-marking war is but commencing to count the cost and to appreciate the enormity of its losses. Among these losses not the least is that entailed by the slaughter of millions of combatants of a class most essential for carrying on the world's development, for doing the world's work, a class drawn from what must be considered the most valuable, so far as productivity is concerned, of the world's population. Appreciating this it is unnecessary to comment further on the tremendous necessity of taking every means to replace as speedily as possible these lives sacrificed to the greed of world dominion. Reconstruction demands the effort of every unit which can be put into the struggle to offset the enormous losses of human life and fortune. Even under ante-war conditions, falling birth rates indicated the appearance of a period when the old racial stocks were facing the prospects of gradual disappearance and their replacement by races of alien descent. The tremendous reduction of the birth rates which has accompanied and was caused by the protracted struggle has introduced an unforeseen series of conditions which will tend to hasten the process. These factors combine to bring about a condition in which is emphasized the necessity of conserving every life which science or knowledge can preserve.

Every reason appeals to us in our selection of the mortality of the young as our point of attack. On these in a very short space of time the future of the races will depend, for but few years will see entrusted to them the task of carrying on the torch of civilization, dropping from the hands of those who have reached the allotted span, and have completed their work. "Give us the young, give us the young", cries Kidd in his "Science is Power", "and we will create a new world and a new mind in a single generation". While all life is valuable, those lives which have before them the longest future, which have for their guidance and assistance the rapidly accumulating stores of knowledge which the present affords, must be considered the more valuable, if a comparison be permitted. Nor should it be forgotten that the efforts already made to

conserve these lives have been crowned by the most valuable results, and the knowledge of this should spur us on to increased endeavour.

Preliminary to entering into the consideration of the subject, taking it up from the aspect of the child, the parent, and the home, it is desirable to outline as clearly as may be the class who are affected by the efforts aimed at the conservation of child life. Many of you are doubtless acquainted with the instructive series of graphs which depict in the forms of curves the death rates per thousand in the various age groups of England and Wales, which countries, having the advantages of a fairly accurate and quite recent compilation of census figures, together with a system of registration of births and deaths, which is at least quite accurate, are in possession of the data from which information for plotting the curve may be obtained. You will therefore have no hesitation in recalling to your memory the graph, which, commencing at a relatively high place in the scale, (in the vicinity of 100 or more per thousand infants under one year of age, indicating an infantile death rate of approximately 100 per thousand living births), drops suddenly to the vicinity of 60 per thousand for the age group under five years, falls still farther to the vicinity of 4.5 for the children of the age of 5, becomes still lower, in the vicinity of 2.5 per thousand of persons aged 10, from which point it gradually ascends till the age of 45 is reached, after which the rate of ascent becomes higher and higher. My subject, the conservation of child life, deals with the preservation of life during the ages in which the death rate per age group first falls rapidly to the minimum, and then remains more or less stationary before the final rise.

It will thus be seen that to a large extent the influences on the death rate of parentage and antenatal care and of the multiplicity of causes which make the infantile death rate so high have had their effect at a period antecedent to that which we are considering. The stage of existence during which these were at work to their fullest extent has been passed. The dangers of the fatal few months after birth have been circumvented, and the child is entering upon a stage of its existence during which its chances for health and life are apparently the brightest. But low though the death rate be, a very cursory examination is sufficient to make us realize that under proper conditions it is possible to make a still better showing, and to lessen still further the number of deaths occurring between the ages of one and fifteen years. And do not overlook the fact, that measures taken to reduce the death rate will have a tremendous effect on the damage rate of the race as well. Not only the saving of life between the ages indicated will follow well directed efforts aimed at this conservation, but possibly more valuable results will follow in preparation for the after coming years, when these efforts, used primarily to prevent the loss of life, shall have assisted all within these

age groups to pass through the period unscathed by disease or its effects, shall have enabled them to enter into young manhood or young womanhood in conditions of physical health which augur best for the continuation of the race, and shall have encouraged health habits during a formative period of life which will undoubtedly grow to full fruitage in later years.

Consider the rate of race wastage, as brought out by the English recruiting returns. It has been computed that at the age of 18 years one male in four is unfit for military service. At the age of 23, the number is doubled, two persons in four being unfit, the intervening years being accompanied by a rate of wastage, the foundations of which, we are quite justified in assuming, have been laid in previous years. So that efforts at life saving will be followed by damage reduction to an extent the effects of which will be perceptible into ages far beyond those of the period under discussion.

For the purpose of providing some concrete statement of fact around which may be draped the more abstract remarks on the subject, and also to introduce some personal or Provincial element which might appeal to us more strongly than would a like collection of figures compiled from other sources, an analysis has been made of some Nova Scotian figures, grouping in a way most suitable for our purpose, the deaths between the ages of one and sixteen which have occurred during five years of a period between 1911 and 1917.

(NOTE—The figures given are for the years 1911-12, 1912-13, 1913-14, 1914-15 and 1916-17. The figures for 1915-16 are not published by the Deputy Registrar of the Bureau of Vital Statistics. The year 1917-18 was not taken owing to its unusual nature and large number of deaths due to the Halifax explosion and several mining accidents. In the same way, the figures for 1918-19 were not selected on account of the influenza deaths, which made the figures for that year far from what might be considered normal).

During this period the total Provincial deaths were 37,136. Of these 4,177 were those of persons between the ages of one and sixteen. It is not possible in the absence of accurate census returns which give sufficient information of the numbers of our population in the various age groups, to compare our death rates in the various age groups with those of England and Wales, from the returns of which countries the graphs referred to previously in this paper have been prepared. Our registration returns are not sufficiently trustworthy to enable an accurate study to be made. What has been obtained, however, enables us, in a general and more or less valuable way, to determine the groups of diseases which are responsible for these deaths, having which, we shall be in position to consider the means necessary for securing a diminution of the number.

During the period referred to, infectious diseases exclusive of tuber-

culosis were responsible for 944 deaths. Of perhaps but minor significance in the discussion of these is the number of deaths attributable to the different individual diseases. There is no reason to assume that these offer any deviation from the normal in their incidence. It is sufficient to state that during the five years referred to Nova Scotian figures returned 464 deaths from diphtheria and croup, 149 from whooping cough, 119 from scarlet fever and 113 from measles. The important thing about these which it is wished to call to your attention is, that these 900, more than a fifth of the total deaths occurring which affected those of the ages considered, were from diseases which we, from our knowledge of their incidence, their causation, their methods of transmission and their ease of control by measures of proven efficiency, are wont to class as preventable diseases. And who to-day has the temerity to say that this is a misnomer? What facts are there in relation to these which have escaped observation, facts of at least vital importance as regards the problems of their method of transmission, the conditions of their persistence and the measures effective in their control? It begs the question to say, as can be said of some of them, that the actual causative agent has up to the present escaped identification. Granted this, but is not every item of importance in relation to them of common knowledge. No longer is it permissible to accept visitations of these diseases as scourges of an angry God, afflictions to be borne in patience with no efforts to be made towards their prevention, their attacks a necessary evil in our process of development. We realize that they are preventable, and, behold the inconsistency, they are not prevented, though the toll they exact among the most helpless, the most trusting of our race is a terrible one. Who, from personal experience or contact with those whom these diseases consign to early graves, or whose unhappy lot it is to survive destined to carry with them evidences of the havoc the disease has wrought in defective physique, defective sense organs, defective mentality or impaired constitutions, is willing to advance one single argument for their continued existence? Who, after successfully meeting them, localizing their outbreaks within well defined limits by measures the efficacy of which long experience has proven, does not doubt but that with continued effort much greater repression can be secured? Who, knowing these things, escapes responsibility in connection with the slaughter of the innocents which is daily going on around us? We have learned by long experience full and complete information of every detail of the development of these diseases, we have individually, when pressed by personal necessity, made use of the well known repressive measures, and have witnessed the diseases become located, run their courses and die out. What excuses can we offer for permitting the continued inroads of these diseases? Is there one valid argument to be

adduced in extenuation for their continued existence? How can we justify ourselves in a course of action which permits this loss of life among us? How can we condone the carelessness which jeopardises the valuable and vulnerable lives under our care? What argument excuses the lack of faith which holds up its hands in despair and permits these diseases to run riot in our midst? What shall we say of the selfishness which permits us, our own children being safe, seeing those of a neighbour or friend cut down or impaired in the struggle for existence, as results of sequelae following these diseases? How shall we combat the ignorance which regards them as necessary evils, in the course of a child's development, experiences which all must undergo? We cannot escape the conclusion that our carelessness, our apathy and our ignorance are directly responsible for these deaths, and that, but lack of premeditation mitigates the criminality from murder to manslaughter.

It has been stated that tuberculosis deaths were not included among those due to infectious disease. Our Provincial figures intimate that 454 deaths occurred during the period named from all forms of tuberculosis, a number which is proof of the necessity for more active steps being taken in its control.

A fact to which it might be well to call attention is that, whereas during the period named the total Provincial figures appear to have declined, at least so far as the death rate per hundred thousand is concerned, the rate in the age groups considered appears not to have participated in the change. For the individual years the figures are—86, 79, 84, 97, 108, which may indicate a relative increase, though the absence of figures giving the numbers of persons in the age groups makes accurate knowledge impossible. What is possible of achievement however, is a reduction in the number of these deaths if a determined attempt is made to secure it. The wide spread nature of the contagion, the number of latent cases, the difficulty of isolation of those suffering from the disease, and the fact that the problems which its control presents are more often social problems than medical ones, justify our consideration of it in a class by itself. I need not remind you of the belief that to a great extent all infections from tuberculosis occur in the younger age groups. There is ample proof to support this belief, the acceptance of which emphasises the importance of the correct treatment and supervision of persons in these age groups. Little less applicable to this disease than to the other germ diseases are the remarks concerning the possibility of its prevention, and the conviction that our tolerance of it in our midst is the result of our apathy, ignorance or neglect. "If preventable, why not prevented", is the remark accredited to the late King Edward in connection with diseases of this class, and no satisfactory reply has yet been made to the question.

Deserving of comment also is the number of deaths due to respiratory diseases, which total 681 for the period named. The ground can very safely be taken that a great deal can be done to prevent diseases of this class. The infectivity of the common cold is a matter beyond a doubt. Prevent this infection and a great deal of more serious pulmonary or respiratory trouble can be prevented. Cure the cold, or if such an expression be thought heretical by those who doubt the efficacy of any treatment but that of nature, namely time and the formation of the antibodies, take measures in prevention of the sequelae and fatalities are not likely to develop. Do everything possible to keep the child in such a condition of health that infections will likely be easily thrown off or quickly recovered from. There is no doubt but that children, insufficiently nourished or the victims of incorrect feeding, not only are more subject to these infections but have less resisting power should the disease be contracted. Further, by appropriate treatment lessen the number of avenues by which infections may gain entrance. Correct deformities which interfere with normal healthy development. By these measures it is possible to do much in prevention, and if to these is added the protection of children from infection, it is safe to say that these respiratory diseases may be very easily reduced in number.

Diseases of the digestive system claimed 537 victims in the period named. Here again without a doubt were many deaths due to infections occurring because faulty hygiene had prepared the way. Diarrhoeal troubles following incorrect feeding are instances in point.

These which we have considered are but selected groups of disease from a large list. Are we not justified however in our contention that the showing the province has made in the saving of lives by measures directed towards better care of the child itself is one for which little credit can be taken? Do we not feel convinced that better treatment, more frequent examinations, more protection, better hygienic conditions, with all that these measures imply in the correction of faulty diet, supervision in the hours of play and rest, the selection of more suitable clothing and the inculcation of health habits, might have resulted in the saving of many lives?

In connection with our consideration of the effect which parentage has upon the conservation of child life, many and diverse factors are to be considered. In the younger age groups the vulnerability of the young of the species indicated by the normally high death rate is very evident. We may not believe the exaggerated statement that preparation for life should commence two hundred years before birth, but we cannot help but realize that children to be able to pass successfully through the dangerous first years of existence must have the advantage which a healthy parentage bestows. While the fatal first year witnesses the

removal of a large percentage of infants who entered into the struggle handicapped by the effects of parental disease, bad habits, ignorance, poverty, or social or economic status which contributes to make all infantile mortality rates high, the effects of these are also seen in the years immediately following the passage of the child from infancy to childhood. Luckily the ordinary child by the time it has attained the age of one year, has been enabled to adjust itself to many of the assaults made upon it by incorrect habits of feeding or by an incorrect diet, and has developed a most wonderful immunity which under ordinary circumstances carries it along to the period when it can to a greater or less extent look after itself. But not wholly is it beyond the period when the evil effects of parental disease or bad habits can be traced. Venereal disease may still cut short its existence, nor does its fell and fatal power elapse for many years to come. The evils consequent upon a parentage marred by mental instability or deterioration may still make themselves felt. Defective physique and lessened resistance inherited from parents themselves lacking in vitality may be insufficient to enable the child to weather the storms incidental to existence, and in short, all the factors which aid in bringing about a high mortality during infancy still have a marked though diminishing effect.

During the later periods of childhood, a different set of conditions are to be considered, conditions affected to a much greater extent by the social and economic status of the parent. Are the parents ascending in the social scale, or are they victims of disease, bad habits or defective mentality, instead of becoming more and more able to meet in comfort the expenses incidental to a proper care of the family, sinking in poverty and becoming less able to procure the attention which the child requires? Have business reverses been encountered? Is the wage earner able to procure the necessities of life for his family, or in the never ceasing struggle between capital and labour has his comfort been gradually encroached upon and he become less able to provide for those dependent upon him? Have waste, immorality or the pursuit of unworthy ideals resulted in a moral starvation which reacts injuriously on the physical condition of the family?

Nor must we forget the parent's economic status. Poverty which permits no more than the supplying of the merest necessities for existence does not conduce to a continued healthy condition of the parents, a condition on which the safety and wellbeing, nay the very life of the child may depend. Is the mother herself one of the wage-earners of the family?

Fortunately, woman or child labour in unhealthy factories is not one of the evils which we in Nova Scotia are forced to correct. I cannot however but refer to one aspect of this question of which I have no doubt

all of you who have country practises have seen instances, namely, instances of impaired nutrition in the families of farmers, due wholly to the fact that the high prices to be obtained in the markets for their produce have induced them to deprive themselves so much of the most valuable and highly priced articles of food that the remainder has not been sufficient to meet the demands of the family by providing sufficient nourishment for their needs. Without a doubt there are communities in Nova Scotia where this condition exists, where the choicest articles of food must be sacrificed to meet living expenses while the residue proves insufficient for the demands of growth and health.

But doing what is possible to secure a healthy parentage is not sufficient, for these can only remain so if their environment is such as is compatible with the maintenance of the standard of health considered necessary. The home, in other words, must be healthy. And a healthy home cannot be found where conditions of poverty enforce overcrowding in unsuitable unsanitary tenements, where privacy is not obtainable, where personal hygiene cannot be attended to, and where the living conditions or the aspirations of the parents do not lend themselves to the creation of the atmosphere which distinguishes a home from a mere place in which to eat, sleep and live.

See the influence which overcrowding has on the infantile mortality rates. Where an opportunity for the study of their aspect of the question has been found, it has been computed that the infantile mortality rate of infants born in one roomed tenements in a certain city was 219 per thousand. In two roomed tenements it was 157 per thousand. In three roomed tenements it sank to 141 per thousand and among the families occupying tenements of four rooms or over it was but 99 per thousand. If overcrowding is attended with such deleterious effects on infant life, and there does not seem to be reason to doubt the conclusions arrived at, how can we escape the inference that its effects are little less baleful on those of greater age? But overcrowding is only one evidence of faulty home sanitation. Water supply, sewage connections, dietetics in its relation not only to the quantity and quality but also the proper preparation of food, ventilation, all are of importance, and the proper or improper attention paid to them may constitute the difference between health and disease, between life and death.

The homes having been brought to a proper standard individually, it follows that the first step has been taken towards a satisfactory community hygiene. The especially important community building which it is desirable to keep in a condition as nearly approaching sanitary perfection as is possible is the school, in which a large portion of the time of a normal child is passed. So it would seem, but in practise it is a most regrettable fact that individuals who will not countenance a breach

of hygienic observance in their own homes will tolerate, without comment, in the schools their children attend a condition of affairs which is most deplorable. This community building should be a model of everything which is most desirable from the point of view of health maintenance. How often is it the reverse. Why teach hygiene in the schools if the schoolhouse is itself a model of unhygienic construction, if the out-buildings are, as they very often are in rural sections, abominably filthy, and if a child's acquaintance with infectious disease is usually coincident with its commencing school life.

I have notes of more than thirty school houses which I have recently inspected. One school was found which had satisfactory toilet accommodation for the pupils. In one more the seats were not contaminated with urine and faeces. In the remainder without exception, urine and faeces were over the seats and on the floors. Many buildings had defective doors and windows, many were most dilapidated and in a tumbling down condition. The majority were not constructed over any pit or box to catch the discharges, and not one was screened. Instead of being places where health habits are taught, our schools are very often places where the good effects of health teaching from other sources are irretrievably obliterated.

I shall deal very briefly with the consideration of the illegitimate and the abandoned child. I need not remind you the infant mortality rate of the illegitimate infant is ordinarily double that of the infant of legal status. We are, I am quite sure, safe in saying that the death rate during childhood is correspondingly large. How can it be otherwise, bereft of every condition which makes for normal healthy happy childhood. Too often, the illegitimate, these wards of society, are meted out a treatment, which, were it designed to be a species of torture the ultimate aim of which was the death of the victim and the relief of society from the burden of its maintenance, would be a gigantic success. Yet these lives are as valuable as are others, preliminary to whose birth some cleric has mumbled some uncomprehended jargon. Their inherent capabilities may be as greta, their futures as brilliant. The manner of their coming into the world is no excuse for their being callously and brutally hurried out of it.

Without a doubt their value as members of society will, under the circumstances resulting from the great war, be more fully appreciated, and the treatment meted out to them in the past will not be longer tolerated. Much work has already been done in attempting to get for these poor unfortunates a chance for existence equal to that enjoyed by others whose existence is somewhat more regular but no less innocent. The introduction of the Speedwell system for the care of these, a system which aims to have children of these classes looked after in foster homes

in suitable families rather than being looked after in institutions, has been followed by great reduction in the death rate, and without a doubt will result in the turning out of better children, healthier both physically and mentally.

Even with theis very brief survey, it must be appreciated that tremendous returns will repay careful conscientious and well directed work done towards conserving the lives of children in these age groups. These who have been dying are not the unfit of the race. Saving these would not run counter to the evolutionary process going on around us, for the doctrine of the survival of the fittest does not apply where social evolution is concerned. Let there be no doubt of the results, if the problem is attacked in a way which its importance demands. The record which medical science has made during the past few years is a proud one. We can look back over the noteworthy achievements; suffering curtailed, disease conquered and life lengthened; and the survey justifies confidence in the ability to solve any problem the future may send or the present sees still unsolved. See what was done during the past five years of war when preventive medicine cut down disease deaths to less than one eighth the battle deaths, a record unprecedented in history. War's necessities demanded the prevention of diseases in order that the wastes of the armies might be reduced to a minimum. Peace now demands, more urgently if possible, the conservation of life, that war's ravages may be obliterated as speedily as possible. The methods to be followed are the same in peace and in war, the minds to outline the policy are the same. Have we the energy, organization and insistence upon results which established that record?

A Plan for a More Effective Federal and State Health Administration

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(Continued from the October issue)

PROPOSED NATIONAL AND LOCAL HEALTH CENTRES

The effective administration of public health depends in no small measure upon the proper housing of the health administration. With few exceptions the health organizations of the several States and municipalities are inadequately housed and frequently disgracefully so. In numerous conspicuous cases the office conditions symbolize official indifference to sanitation rather than rigid conformity to ideal sanitary requirements. If modern civic pride insists upon the adequate housing of general governmental activities, this attitude has not as yet extended to the Health Department, although it is now quite generally observed in the case of court houses and public libraries. The progress which has been made in Federal buildings is also suggestive of the direction to be followed in the future housing of the Federal and local health administration. It would, however, seem decidedly preferable to assign to the health administration a separate building, the exterior and the interior construction of which should be in conformity to a thoroughly worked out plan of efficient coordination of essential functions as obviously most advantageous to the administration itself and the general public. The outside impression should at once convey the idea of a temple of hygiene rather than of any other branch of the Government, however important for public purposes. Certainly in the case of the Federal Government there is now the most urgent need for a new and thoroughly equipped as well as efficiently coordinated separate building for the adequate housing of the U.S. Public Health Service. A standard type of architecture might be developed so as to accustom the public mind to the idea that the public health administration as thus housed typifies the ancient conception of a temple of hygiene or a house of health. In the case of municipalities and counties such a building might be constructed in a manner of providing not only for the central organization of the health administration, but also on the one side, first aid, dispensary, infirmary and hospital facilities, and on the other the necessary office facilities for the registration of births, marriages and deaths,

the physical statistics of the growth and development of the juvenile population, and finally for the records of diseases and other data, as essential to a well coordinated plan of public health administration. As thus conceived such a building would constitute the *health centre* of the community and it might easily be provided with an auditorium for lectures on health and welfare contributory to the health educational propaganda efforts of the local health administration. By combining the administrative health functions with other essential auxiliary duties and health promoting efforts, the health centre could be made the radiating source of all local health activities, both public and private, the thoroughly effective coordination of which is never likely to be secured otherwise at the required minimum of time, labour and expense.

PUBLIC HEALTH LIBRARY, SANITARY INFORMATION AND STATISTICS

Effective teaching methods depend in a large measure upon adequate library facilities. There should be brought into existence a great national Library of Public Health Information and Statistics, including the graphic presentation of mortality and morbidity facts not only for the United States, but for all important countries of the world.* Such graphic illustrations should not, however, be limited to mortality and morbidity, but an effort should be made to correlate such information to climatological, pathological and other scientific data useful for the purpose. At the present time a vast amount of useful information is available only through general medical libraries which cannot possibly meet highly specialized practical requirements. In course of time there should be coordinated to such a library a Museum of Public Health more or less in conformity to the principles which govern in the arrangement and development of the American Museum of Safety. The methods of health instruction require to be made much more objective than is generally the case and special emphasis should be placed upon demonstrations of simple methods of sanitary surveying as absolutely essential to the development of rational plans of sanitary reforms. There is entirely too much reliance upon book teaching and insufficient attention to the urgency of personal contact with the actual facts of the sanitary and related sciences which require to be dealt with in every-day life.

*On the occasion of the Panama-Pacific Exposition, San Francisco, 1915, The Prudential Insurance Company of America made an exhibit of mortality facts, presented by a large number of charts, descriptive in part of the Geographical and Race Pathology of the Western Hemisphere. The exhibit has since been made a permanent one, together with other charts of mortality tendencies from particular diseases, the relation of height and weight to the mortality from specified causes, the influence of family history, etc., at The Prudential's Home Office, No. 9 Bank Street, Newark, N.J. Descriptive publications are available on request.

It has been said that the three fundamental ends of teaching are knowledge, power and skill. To secure these ends in public health administration obviously necessitates much more adequate teaching facilities and teaching methods of a much higher standard than those available to the earnest and conscientious student at the present time.

THE PROPER PLACE OF A FEDERAL HEALTH ADMINISTRATION IN THE FEDERAL GOVERNMENT

The proper official status of a Federal Health Administration would not seem to be a position in the Cabinet, but rather as an entirely independent Federal department, responsible directly to the President. Every position in the Cabinet is primarily political in its nature and for purposes of administrative guidance and control under our form of government and responsibility on a paristan basis. The introduction of politics into a Federal Health Administration would be lamentable and lead in the end with practical certainty to the defeat of even the best conceived measures of reform. The remarkable success of the U.S. Public Health Service has its origin in the fact that throughout its entire history of more than a hundred years, first as the Marine Hospital Service and subsequently as the U.S. Public Health Service, the organization, broadly speaking, has been kept entirely out of politics. If it has been found practically feasible to administer and control the interstate railways through the Interstate Commerce Commission, directly responsible only to the President, it should not be difficult to bring about a corresponding organization on the part of a Federal Health Administration concerned exclusively with the public welfare and with nothing else. By a mere accident of early circumstances the Marine Hospital Service was placed in the Treasury Department, but it should require no argument to sustain the point of view that the enormous interests involved in an effective public health administration even through the U.S. Public Health Service as at present organized can not be adequately met by a Cabinet officer concerned primarily and chiefly with questions of public finance. It is, therefore, to be hoped that in the event of a complete reorganization of all Federal health agencies the new organization will be placed on the basis of a separate administrative function directly responsible only to Congress and the President.

To be Continued.

Social Background

The Meaning of Poverty

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Read at Annual Meeting of the Canadian Conference on Public Welfare,
Hamilton, May 10th and 11th, 1920.

I SPEAK at your session to-morrow afternoon on Problems of Relief, but I am glad that for this evening I was asked to choose a popular rather than a technical subject. In a city like Hamilton, which I suppose has a population of nearly 150,000, there should be many present at the evening sessions who are neither professional social workers nor, as yet, even volunteers. Volunteers are as much needed by us as in the world war, where no doubt you responded splendidly.

The French have a saying: "The king is dead; long live the king!" (*Le roi est mort; vive le roi!*) So I say: The war is dead; long live the war! We have won the war against militarism and irresponsible autocracy; and now on with the fight in our war, the social workers' war, the war against poverty, which is a more dangerous enemy than even Germany. It is also a more lasting enemy, and a more brutal enemy. There were pacifists in the war against Germany, and even pro-Germans; but I never heard of a pacifist in our war, or of anyone who was pro-poverty.

THE WAR ON POVERTY.

I want to make you feel, if I can, that poverty is a real danger to you—the comfortable, as well as to the poor—and that it is a danger to the city, the state, and the nation. The poor are to some extent wonted in their poverty, and some few of them even deserve it. It is the well-to-do for whom I am now concerned. There should be the same thrill in our war as in the world war. I do not mean the thrill of slumming, for those who hope to find in the lives of others an excitement which they miss in their own. We want none of these. We want you, however, for we are too few. As Shakespeare says, "We few, we happy few, we band of brothers."

There is dangerous fighting, too, in our war. I was a classmate

at Harvard of Theodore Roosevelt, and I have often said that Roosevelt found quite as dangerous enemies in New York and Washington as in Cuba or in the jungle. Once when speaking at Reading, Pennsylvania, I said that there is just as good fighting in social service as in military service; and the morning paper reported me as saying that there is just as good fighting in social circles as in military service!

Poverty is sometimes a blessing. Benjamin Franklin said that to be born poor is to be thrown into the very lap of fortune, for we are forced to develop our own resources. Old Simon Cameron of Pennsylvania is reported to have said: "My son, Don, has had many advantages, but I had one which was worth all of his—poverty." These are half truth, however, though poverty is often a spur.

There is a difference between voluntary and involuntary poverty, and between hopeful and hopeless poverty. I look forward to the day when involuntary, innocent poverty will be adequately assisted; and when voluntary, wilful poverty will be punished, as it should be, when opportunities are equal. Then poverty in its present sense will cease to be, but this will not come until we have a different social justice from what now exists. To-day many of our poor are foredoomed, and see no escape from an industrial poverty which seems to be almost increasing. Poverty of the hopeless sort, from which strong and capable men cannot extricate themselves, is debasing and demoralizing both to the individual and the state.

The rich and the poor have misconceptions about each other. The rich often think the poor idle and corrupt, and the poor as often think the rich idle and corrupt. Of course, there are the sturdy, industrious poor, as there are the simple, industrious rich; but, on the whole, there are more idle rich in proportion to their number, than idle poor, and they are more dangerous. There are also more vicious rich in proportion to their number than there are vicious poor, and they are more dangerous. Gilded vice is more dangerous than vice ungilded. It has more power, it is imitated more, and it has less excuse, for the vices of the rich are due more to desire than to temptation. On the whole, rich and poor are much of the same clay. It was a fine saying of John Bradford, five centuries ago, who said as he saw some criminals going to execution: "There, but for the grace of God, goes John Bradford." Another fine saying is that of President Hadley of Yale, that life is a trust. If life is a trust, we must fulfil that trust, and not embezzle for personal use the gifts or money which were given us for others.

THE APPLIED RELIGION.

I spoke of our war against poverty. It is a holy war, and we are crusaders. As social workers we minister more than many ministers. Our church is the Church of the Divine Fragments, or the Church of Broken Lives. Ours is what I call applied religion. What we say to God we must do for man, or what we say to God is insincere.

Saving your own soul only may be selfish business. If Martin Luther had thought too much about saving his own soul, what would have become of the Reformation? Every monk in Rome told him that he would go to hell, and Luther took his chances for the truth as he saw it, and to help the world, and many of us think he helped the world. A man may keep all the Ten Commandments, but if he never lifts a finger to help the town he lives in, he will not go to any heaven where I care to join him. It is important to save our souls, but it is also important to save our city and our country. We want not only to make the world safe for democracy, but to make democracy safe for the world.

INTERDEPENDENCY OF POVERTY.

My subject is The Meaning of Poverty. We ought all to realize that the rich and poor are one family, and that we live in one house. If the cellar of that house is foul, will the house be sweet? If there are weeds in a garden, will the flowers thrive? It is not always easy to distinguish weeds from flowers. Our common mullein, which grows with us by the wayside, is said to be displayed in England as the American velvet flower.

It makes me angry to be told that in helping poverty we are un-Darwinian, and that it checks the survival of the fittest. A clever friend of mine said once that he believed in the survival of the fittest, but not in the survival of the fattest. We can neglect poverty, but if we neglect poverty it will not neglect us, for neglected poverty is a running sore which poisons the whole body politic. The diseases of the poor cross ward lines. The vices of the poor cross ward lines, and the votes of the poor cross ward lines. I often say that the only way to have a better city is to have better citizens, and that the only way to have better citizens is to give them better opportunities for health, education, and morality. By doing so we shall also lessen poverty; for disease, ignorance and sin are three of its chief causes.

THE CAUSES OF POVERTY.

I am often asked the chief causes of poverty. Of course disease, ignorance and sin are three; and I like to say that the health department, the school department, and the police department can do more to lessen poverty than any charity organization society; for, by lessening disease, ignorance and sin, they hit three body blows at poverty. Misfortune, again, is a chief cause, and by this I mean such mischance as widowhood or disabling accident. Lack of opportunity is one of the greatest of all causes, and so is social injustice. The American Association for Labour Legislation bears on its letter-head the sentence: "Social justice is the best insurance against social unrest." So it is, and social unrest is dangerous, but so is social rest. I hope there will never be social rest, for that would mean stagnation. Lack of character is also a primary cause of poverty; but I do not mean so much lack of character among the poor, as lack of character among the rich, who control many of the causes of poverty. It is the rich who are responsible for the twelve-hour day, the seven-day week, the starvation wage, and the crowded tenements which breed disease and vice. Some one has well said that many of our tenements have an iron fire escape but lack a moral fire escape.

I look forward to the day, and see it coming, when the stigma of the word charity will be removed because charity will concern itself not so much with poor people as with poor lives, and when charity will be thought of not so much in connection with poverty as with the social use of life by all alike, rich and poor. The social sins, which make all society poor, are as conspicuous as contagious, and quite as dangerous among the rich, as they are among the destitute. Modern charity will have as much to do with the trusts, the tariff, and the city government as with the poor.

I have a slogan for poverty borrowed from the old tuberculosis slogan of twenty years ago. It is not the one from Shakespeare in Hamlet's soliloquy, "Tb. or not tb.," but this: Poverty is a communicable disease; poverty is a curable disease; poverty is a preventable disease. Undoubtedly it can be communicated, and just as undoubtedly it can be cured and prevented. Are we doing this? Are we succeeding in our war against poverty? Assuredly we are.

Bestial, squalid poverty is going. The poor of America have meat once a day, spring beds, clocks and carpets, and send their children to school. We have changed the definition of poverty, and American poor families now exact from society a standard of living

which the poverty of Asia and Europe cannot obtain. The poverty of America is as different from the poverty of Asia as the intelligent American farm hand is from the man with the hoe. Yet there are thousands now living here in a condition of poverty which another generation will not tolerate.

We can show success in my home city of Buffalo. In 1876, the year before our Charity Organization Society was formed, the city outdoor poor relief was \$112,053. Nearly forty years later, in 1914, with a city four times as large and a larger amount of immigrants, it was \$59,549. By actual count, there are fewer dependent families, and we count now incipient poverty, which formerly we hardly recognized. Is it true that the rich are growing richer and the poor poorer? The rich are growing richer, and there are vast fortunes such as were previously unknown, but the poor are not growing poorer. There is no such poverty now as in the time of Dickens or of Hogarth. Those who are neither rich nor poor are increasing most of all. I mean those who will not sacrifice life to money, and who prefer living to money-getting. Our problem now is not so much the dependent poor as the independent poor; not starved bodies but starved lives.

MODERN POVERTY.

Even to-day, since the war, the wages of unskilled labour hardly allow the necessary decencies of life for good citizenship. For a man and wife and three young children aged 12, 10 and 6, which is a normal family at its costly period, our present budget is \$94.07 per month, or for a year about the income of a four-dollar-a-day labourer working 300 days. But this budget does not allow recreation, saving for a rainy day, or other essentials. To quote, with adaptations, from Rowntree's classic book called "Poverty" (p. 133) : "Families living upon the schedule allowed for in this estimate must never spend a cent for railroad fare or street cars; they must never purchase a penny paper or spend a nickel for the movies. They must write no letters to absent children, for they cannot afford the postage. They must never contribute anything to their Church, or give any help to a neighbour which costs them money. The children must have no pocket money for dolls, marbles or candy. The father must smoke no tobacco and must drink no beer. Everything bought must be of the plainest and most economical description. Should a child fall ill, it must be attended by the city poor physician. Finally, the wage-earner must never be absent from his work a single day."

"This may seem an over-statement, for in thousands of families with a smaller income than \$4 a day the men do smoke and do spend on dress and recreation. The unseen consequences of poverty have, however, to be reckoned with. We see the labourer healthy on smaller income, but we do not see that to give him enough the mother and children habitually go short, for the mother knows that everything depends upon the wages of her husband. We see the man spend for tobacco and beer, but we do not see the children growing up to anaemic and unsafe citizenship." (P. 135.)

We must allow the poor some extravagances, like that of the hungry little girl who bought red kid shoes which her soul craved. When I am financially blue, a small extravagance encourages me. One of the chief unkindnesses of the rich to the poor is that of expecting too much of them. The rich often expect the poor to have all the virtues of Epaminondas and Socrates, with a few saints added.

Some social workers do not believe in individual work for single families as a cure for poverty. They say they believe only in community or mass work, which attacks the roots of poverty. It is true, as they say, that we can no more abolish poverty by individual case work with single families than we can fill a sieve, but we must remember that the case work is the foundation of the mass work which attacks the roots of poverty, for we must look before we leap.

THE ATTACK ON THE CAUSE.

Moreover, poverty has as many roots as a banyan tree, and to kill it, it is not enough to cut one root. We must remember, too, that the roots of poverty and of wealth are intertwined, and that some of the more radical socialistic remedies which touch the roots of poverty, touch also the roots of wealth, and may kill the tree which bears both. I claim that both wealth and poverty are *grafts* on the same sound stock. I want less poverty in the world, and I want also less wealth.

Health made great strides when the doctors in addition to curing individual patients began to attack the causes of disease through public health, and morality made as great strides when the ministers added to their saving of single souls an attack on the great causes of sin. The other side of this is illustrated in a story of Julia Ward Howe and Senator Charles Sumner, of Massachusetts. Mrs. Howe asked Sumner's aid for a single slave, and the tired Senator said that he had given all his life to the Negro race, but

that he had advanced beyond the individual. "I do congratulate you, Senator," said Mrs. Howe, "if you have advanced beyond the individual. Even our Lord Jesus Christ never advanced so far as that." She had him, of course, though in a sense both were right. We shall never outgrow the model charity of the Good Samaritan, who did not send another, but went himself to help a single sufferer not of his own race and not of his own faith; but it has been well said that it would have been a still higher charity, and kinder as well as wiser, to keep the road to Jericho clear of thieves so that the man would not have been robbed and beaten.

I want the individual to do much, but I want the city to do more. I believe in public recreation, for as Joseph Lee well says: "The boy without a playground becomes the man without a job." I believe in public health. It is expensive, but no matter what health costs, disease costs more. Disease is more contagious and more dangerous than ignorance; and, just as I believe in free compulsory education, I believe in free compulsory health. As private schools are only for those who prefer them and can afford them, private doctors may soon be only for those who prefer them and can afford them.

Of course, all this means higher taxes; but I believe in higher taxes for good social work if well administered. I am not so much interested in taxes for commerce as in taxes for citizenship. I believe in taxes for schools, and I believe also in taxes for health and morality, so that the burden borne now by a willing few will fall also on the less willing many. If this is socialism, I am an incipient socialist.

THE RIGHT TO A FULL CITIZENSHIP.

The poor to-day have "a hundred advantages that were wholly out of reach even of the well-to-do man living in towns forty or fifty years ago." I am quoting Albert Shaw in his book, "The Outlook for the Average Man," p. 44, published in 1908. He says: "It is nowadays regarded, not as a wild dream, but as a fairly sober and reasonable proposition, to demand that the poor man may at least live in a model tenement, on an asphalted street, with pure air to breathe and with pure water to drink; that he may be surrounded by marvellous safeguards in the way of health protection and police and fire protection; that he may send his children to the very best of schools; that in the evening he may read the best of books from the free public libraries, by gas or electric light cheaply furnished; that he may hear the best lectures without price; may attend excel-

lent free concerts, visit beautiful parks, public museums and galleries of art, look upon noble architecture and monumental statues with a feeling of pride and a sense of common possession; that he may ride swiftly and luxuriously in public vehicles at small price, and that he may be safeguarded against the worst dangers of illness or old age through one form or another of benefit funds or social insurance." "The poor man, too, under the eight-hour system, is to have his leisure, his books, his music, his pictures, his parks, his opportunities of quick travel, his swimming bath, his gymnasium, his golf course, and a hundred advantages that were wholly out of reach even of the well-to-do man living in towns forty or fifty years ago."

It is a wise city that spends for things like these. I like my friend Raymond Robins' version of the Lord's Prayer: "Thy kingdom come, thy will be done in Hamilton as in heaven." He says, don't say "on earth"; make it definite and local.

God does not do His work so much through miracles as through men and women. God needs us, and we must not fail Him. We must help God. Who was it said: "Am I my brother's keeper?" It was Cain who said this, and Cain is hardly an example.

By work like this we achieve utopias, for to-day would seem utopia to John Ball or Wat Tyler. Utopias, however, recede as we approach them, for when we have achieved one we see another before us.

In whatever way we approach this problem of poverty it is one that is worthy of the best ability of the best of us. Those of us who engage in this work can not only save pain, but can save lives; and by giving better opportunity to the poor and better public spirit to the rich, we can lift character and so help save the state. This I call applied religion, and it is the kind of religion I most believe in.



Cases and Deaths of Communicable Diseases reported by Local Boards of Health for the Month of September 1920

COMPARATIVE TABLE.

Diseases.	Sept. 1920.		Aug. 1920.		Sept. 1919.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Small-pox	93	1	171	0	48	1
Scarlet Fever	188	3	173	4	187	4
Diphtheria	434	51	273	36	291	39
Measles	142	5	626	10	51	1
Whooping Cough	177	15	178	21	141	9
Typhoid	75	11	67	10	101	31
Tuberculosis	180	113	192	129	105	93
Infantile Paralysis	7	2	5	1	9	0
Cerebro-Spinal Meningitis	5	4	6	6	6	5
Influenza and Pneumonia	6	6	6	6	.....	89
Acute Primary Pneumonia .....	.....	46	.....	96	.....	.....
Relapsing Fever and Dysentery	32	5	18	3	.....	.....
	1339	262	1815	322	939	272

Venereal Diseases reported by the Local Officers of Health

	Sept. 1920	Aug. 1920	Sept. 1919
	Cases.	Cases.	Cases.
Syphilis	157	208	115
Gonorrhoea	213	217	131
Chancroid	8	8	7
	378	434	253

SMALL-POX.

The incidence of small-pox in the Province for the month of September shows a very material decline, 27 municipalities reported

93 cases with 1 death, compared with 171 cases for the month of August. The municipalities reporting the greatest number of cases are: Ottawa 13, Sault Ste. Marie 8, Belleville 4, Augusta Tp. 7, Brooke Tp. 15.

SCARLET FEVER.

The returns made for this disease show but little variation with the former month of the year in the number of cases reported, only three deaths occurred during the month.

DIPHTHERIA.

It will be observed in the comparative table there is a considerable increase in cases and deaths over that of August, which would indicate the disease is still prevalent in some localities in the Province, but not to the same extent as in the earlier months of the year. While the cases and deaths given in the quarterly returns ending September 30th, greatly exceed those of the corresponding months of 1919, the case mortality is very little higher, being 13.1 as against 12.8.

VENEREAL DISEASES.

It will be noticed that the number of venereal cases reported has increased greatly over the number a year ago. Undoubtedly this is due to the vigorous campaign now on against venereal diseases. In spite of this there is no doubt that many cases still are not reported. To obtain some definite information along these lines a monthly report of the numbers of Wassermanns and smears handled on new cases is now sent to the Provincial Board of Health from the Provincial Laboratories. These are interesting when compared with the cases reported by the local Medical Officers of Health and prove that many cases are never reported by them.

Disease.	Reported by local M. O. H.	Reported by Prov. Lab.
July, 1920—		
Syphilis	131	161
Gonorrhœa	135	44
August, 1920—		
Syphilis	208	170
Gonorrhœa	217	56
Sept., 1920—		
Syphilis	157	226
Gonorrhœa	213	76

Communicable Diseases for the Quarter ending September 30th, 1920

<i>Diseases.</i>	<i>1920.</i>	<i>1919.</i>		
<i>Cases.</i>	<i>Deaths.</i>	<i>Cases.</i>	<i>Deaths.</i>	
Small-pox	406	1	129	2
Scarlet Fever	530	11	461	9
Diphtheria	1,009	133	667	86
Measles	2,187	30	198	1
Whooping Cough	461	41	333	29
Typhoid	177	29	204	55
Tuberculosis	533	324	511	349
Infantile Paralysis	14	3	19	0
Cerebro-spinal Meningitis	14	13	25	23
Influenza and Pneumonia	0	280	0	207
Relapsing Fever and Dysentery	50	8	0	0
	—	—	—	
	5,381	873	2,547	761

Venereal Diseases reported by Medical Officers of Health, Quarter ending September 30th, 1920

	<i>1920.</i>	<i>1919.</i>
	<i>Cases.</i>	<i>Cases.</i>
Syphilis	496	302
Gonorrhoea	565	439
Chancroid	17	18
	—	—
	1,078	760

Municipalities reporting Small-pox for Month of September, 1920

<i>County.</i>	<i>Municipality.</i>	<i>Cases.</i>	<i>Deaths.</i>
Algoma	Sault Ste. Marie	8	0
Brant	Brantford	2	0
Bruce	Carrick	1	1
Carleton	Ottawa	13	0
Essex	Essex Border	2	0
Frontenac	Hinchinbrook	1	0
Grey	Meaford	2	0
Halton	Georgetown	3	0
	Acton	1	0

<i>County.</i>	<i>Municipality.</i>	<i>Cases.</i>	<i>Deaths.</i>
Hastings	Belleville	4	0
	Trenton	7	0
Lambton	Brooke	15	0
Leeds & Grenville	Elmsley S.	4	0
Lennox & Addington	Augusta	7	0
Muskoka	McLean	1	0
Parry Sound	McKeller	1	0
	Humphrey	1	0
	Spence	1	0
Prescott & Russell	Cumberland	2	0
Renfrew	Grattan	1	0
Sudbury	Sudbury	3	0
	Copper Cliff	1	0
	Cobalt	1	0
Waterloo	Galt	3	0
Wentworth	Hamilton	4	0
York	Toronto	2	0
	Newmarket	2	0
		—	—
		93	1

The Vancouver Meeting

Resolutions passed on the occasion of the annual meeting of the Canadian Public Health Association, June 21st and 22nd, 1920:

Resolution No. 1—

Resolved that the Canadian Public Health Association take this opportunity of expressing to the Canadian Red Cross Society its deep appreciation of the active efforts made by that organization in furtherance of Public Health activities in the Dominion of Canada. Further, that this Association congratulates the Red Cross Society on the definite efforts made by the Red Cross toward the co-ordinating and stimulating of efforts making for the health of the people.

The Association also desires to express its approval of the plans of the Red Cross at their present stage of development, and particularly desire to congratulate the Society on the appointment of a consultative and advisory council. The members of this Council representing both voluntary and official agencies will now have an opportunity of more clearly understanding their relationship to one another, as well as the importance of each as a unit in the general attack on disease.

Moved by Dr. L. M. Lindsay, Montreal; seconded by Dr. R. H. Mullin, Hamilton.

Resolution No. 2.—

Resolved, that the Canadian Public Health Association is of the opinion that in view of the Government action now being taken to limit the incidence of venereal disease it is essential that standardized Wasserman methods should be recognized throughout Canada, and that they suggest that a committee of serologists be appointed to draft such standardized Wasserman methods which can be recommended to the Canadian and Provincial Government being suitable for use in the public laboratories.

Moved by Dr. Lockhart, seconded by Dr. Mullin.

Resolution No. 3.—

Resolved that this Association express its warm appreciation of the hospitality and hearty welcome extended to its members by the Rotary Club of Vancouver.

Moved by Dr. George Clinton, seconded by Miss E. M. Forsythe.

Resolution No. 4.—

Resolved that the Association express its gratitude to the Graduate Nurses' Association and to the Women's Canadian Club for their kindly hospitality extended to the visiting ladies of this Association on the occasion of our annual meeting.

Moved by Dr. J. W. S. McCullough, Seconded by Dr. Moloney.

News Items

A meeting of the Dominion Council of Health, the advisory body to the Department of Health, Canada, was held in Ottawa on October 25th and 26th last. The following members were in attendance: Dr. H. E. Young, Victoria; Dr. T. J. Norman, Edmonton; Dr. Gordon Bell, Winnipeg; Mrs. W. E. Todd, Orillia; Mr. H. J. Halford, Hamilton; Dr. J. W. S. McCullough, Toronto; Dr. J. G. Fitzgerald, Toronto; Dr. E. Pelletier and Miss Helen R. Y. Reid, Montreal; Mr. W. F. Stephens, Huntingdon, Que.; Hon. Dr. W. F. Roberts, St. John; Dr. W. H. Hattie, Halifax; Dr. I. Yeo, Charlottetown.

The following matters were discussed: Child Welfare, Venereal Diseases, Relationship of Official Public Health bodies to the Canadian Red Cross Society, the Opium and Narcotic Drug Act, the Question of Provincial Franking Privileges, the Food and Drug Act.

Resolutions strongly urging the continuation of franking privileges for vital statistics, communicable diseases returns and morbidity reports, also urging the removable of the embargo and limitations in regard to the importation and sale of salvarsan products were passed. The shortage of candidates for nurse training schools was also deplored, and in a resolution dealing with this a suggestion to provide scholarships for suitable candidates put forward.

Dr. John A. Amyot, C.M.G., Deputy Minister, Department of Health, Canada, presided at these meetings of the Dominion Council of Health.

Dr. M. M. Seymour, Commissioner of Health, Saskatchewan, and Dr. C. J. O. Hastings, Medical Officer of Health, Toronto, attended the recent meetings of the American Public Health Association in San Francisco.

Dr. A. Grant Fleming has taken up his duties as the Medical Officer of Health, Toronto, to which position he was recently elected.

An important conference on Child Welfare was held in the Department of Health, Canada, Ottawa, on October 19th and 20th. The meeting was largely attended, and there was organized at the

meeting the Canadian Child Welfare Council. Mrs. W. E. Todd, of Orillia, was elected President, and Dr. W. J. Tillman, of London, Secretary of the Council.

An important meeting of the Advisory and Consultative Committee of the Canadian Red Cross Society was held in Ottawa on October 21st last. The meeting was well attended and much business transacted. The committee has as its chief function the co-ordination of efforts of voluntary health promoting agencies in Canada and the establishment of satisfactory relationships between these and the various Health Departments, Federal, Provincial and Municipal.

Courses of Public Health Nursing are now being given in the University of British Columbia, Western University, London, the University of Toronto, McGill University and Dalhousie University. Provincial divisions of the Canadian Red Cross Society are at present providing financial support for all of these departments with the exception of that at Western University, London.

Dr. Hibbert W. Hill has returned to London as Director of the Institute of Public Health and Professor of Public Health in Western University.

Dr. A. J. Doull has resigned as Provincial Medical Inspector in the Department of Public Health, Nova Scotia, and Dr. A. C. Jost has been appointed to succeed him.

Editorial

Diphtheria Deaths

THE PUBLIC HEALTH JOURNAL has for some time past been much concerned because of the apparent general indifference to the question of diphtheria mortality.

Efforts to reduce this mortality must be redoubled, and the education of the laity must be proceeded with at once. Health Departments, physicians, public health nurses, and all those in possession of the facts as to why diphtheria deaths continue, should disseminate them widely.

Only by a great campaign of education can these needless diphtheria deaths be prevented. The article on the subject in this number of the JOURNAL should be widely circulated and the facts therein presented made public property.

